VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Minor, Municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9VAC25-260. The discharge will result from the operation of a municipal sewage treatment plant (SIC Code: 4952 - Sewerage Systems). This permit action consists of reissuing the permit with revisions to the permit, as needed, due to changes in applicable laws, guidance, and available technical information.

1. Facility Name and Address:
   Toms Brook-Maurertown Sanitary District STP
   600 North Main Street, Suite 106
   Woodstock, VA 22664
   Location: 148 Sanitary Lane, Toms Brook

2. Permit No. VA0061549; Expiration Date: December 31, 2014

3. Owner: Toms Brook-Maurertown Sanitary District
   Contact Name: Rodney McClain
   Title: Director of Public Utilities
   Telephone No: (540) 459-7491
   Email: tbmsd@shentel.net

4. Description of Treatment Works Treating Domestic Sewage:
   Total Number of Outfalls: 1

   The facility serves interstate commercial customers and private residences within the Toms Brook-Maurertown Sanitary District. The treatment units comprising the recently upgraded facility are shown in the schematics included in the permit reissuance application.

   Average Discharge Flow (May 2012 – April 2014) = 0.143 MGD
   Design Average Flow = 0.189 MGD

5. Application Complete Date: May 2, 2014

   Permit Writer: Dawn Jeffries Date: July 25, 2104
   Reviewed By: Bev Carver Date: August 1, 2014

   Public Comment Period: October 13, 2014 to November 12, 2014

6. Receiving Stream Name: Toms Brook
   River Mile: 2.17
   Use Impairment: Yes
   Special Standards: pH
   Tidal Waters: No
   Watershed Name: VAV-B50R North Fork Shenandoah River/Narrow Passage Creek
   Basin: Potomac; Subbasin: Shenandoah
   Section: 6; Class: IV

7. Operator License Requirements per 9VAC25-31-200.C: Class III

8. Reliability Class per 9VAC25-790: Class II (Assigned January 25, 1980)

9. Permit Characterization:
   ☐ Private ☐ Federal ☐ State ☑ POTW ☐ PVOTW
   ☐ Possible Interstate Effect ☐ Interim Limits in Other Document (attach copy of CSO)

10. Discharge Location Description and Receiving Waters Information: Appendix A

11. Antidegradation (AD) Review & Comments per 9VAC25-260-30:
    Tier Designation: Tier 1

    The State Water Control Board's WQS include an AD policy. All state surface waters are provided one of three levels of AD protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 waters have water quality that is better than the WQS. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 waters are exceptional waters and are so designated by regulatory amendment. The AD policy prohibits new or expanded discharges into exceptional waters.

    The AD review begins with a Tier determination. Toms Brook downstream of the facility discharge location is determined to be Tier 1 because the stream does not meet the General Standard (Benthics) for aquatic life use. AD baselines are not calculated for Tier 1 waters.

12. Site Inspection: Performed by Dawn Jeffries on June 6, 2014

13. Effluent Screening and Effluent Limitations: Appendix B

14. Effluent toxicity testing requirements included per 9VAC25-31-220.D: ☐Yes ☑ No

    If "No," check one:
    ☑ Municipal: This facility does not have a design flow $\geq$ 1.0 MGD, has no Significant Industrial Users (SIUs) or Categorical Industrial Users (CIUs), and is not deemed to have the potential to cause or contribute to instream toxicity.
    ☐ Industrial: This facility's SIC Code(s) and activities contributing wastewater do not fall within the categories for which aquatic toxicity monitoring is required, the facility does not have an IWC $\geq$ 33%, and the discharge is not deemed to have the potential to cause or contribute to instream toxicity.

15. Sewage sludge utilization and disposal options include the following: Sludge will be dried and hauled to the Shenandoah County Landfill for disposal or hauled to North Fork Regional WWTP for further treatment and disposal.

16. Bases for Special Conditions: Appendix C

17. Material Storage per 9VAC25-31-280.B.2: This permit requires that the facility's O&M Manual include information to address the management of wastes, fluids, and pollutants which may be present at the facility, to avoid unauthorized discharge of such materials.

18. Antibacksliding Review per 9VAC25-31-220.L: This permit complies with the antibacksliding provisions of the VPDES Permit Regulation.

19. Impaired Use Status Evaluation per 9VAC25-31-220.D: Toms Brook in the vicinity of the discharge is listed as impaired for not meeting the General Standard (Benthics) for aquatic life use. This facility was included in the Toms Brook Sediment TMDL (approved 4/26/04) with the following waste load allocation (WLA) for this discharge:

    Sediment: 7.83 metric tons/yr (based on a design flow of 0.189 MGD and a TSS concentration of 30 mg/L)

20. Regulation of Users per 9VAC25-31-280.B.9: N/A – This facility is owned by a municipality.

21. Storm Water Management per 9VAC25-31-120: Application Required? ☐ Yes ☑ No
    If "No," check one:
    - ☑ STPs: This facility does not have a design flow $\geq$ 1.0 MGD, nor is it required to have an approved POTW pretreatment program under 9VAC25-31-10 et seq.
    - ☐ Others: This facility's SIC Code(s) and activities do not fall within the categories for which a Storm Water Application submittal is required.

22. Compliance Schedule per 9VAC25-31-250: There are no compliance schedules included in the reissued permit.

23. Variances/Alternative Limits or Conditions per 9VAC25-31-280.B, 100.K, and 100.N: The applicant requested a waiver for sampling chlorine, TKN, Nitrate + Nitrite, Oil & Grease, Total Phosphorus (TP), and Total Dissolved Solids. The waiver was granted based on the justification provided.

24. Financial Assurance Applicability per 9VAC25-650-10: N/A – This facility is owned by a municipality.

25. Virginia Environmental Excellence Program (VEEP) Evaluation per § 10.1-1187.1-7: At the time of this reissuance, is this facility considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level? ☐ Yes ☑ No

26. Nutrient Trading Regulation per 9VAC25-820: See Appendix B
    General Permit Required: ☐ Yes ☑ No

27. Nutrient monitoring included per Guidance Memo No. 14-2011: ☑ Yes ☐ No
    This facility is a Nonsignificant Discharger (all facilities not classified as Significant Dischargers as defined in the Nutrient Trading Watershed General Permit Regulation 9 VAC 25-820). Effluent sampling for Total Nitrogen (TN) and TP has not previously been completed and therefore has been included in the permit.

28. Threatened and Endangered (T&E) Species Screening per 9VAC25-260-20 B.8: Because this is not an issuance or reissuance that allows increased discharge flows, T&E screening is not automatically required. However, in accordance with the VPDES Memorandum of Understanding, T&E screening was coordinated on May 5, 2014 through DCR and DGIF based upon request. Comments were received from DCR on May 29, 2014 and from DGIF on May 2, 2011 and are included in the permit processing file. Comments were considered in the drafting of the permit and were also forwarded to the permittee.

29. Public Notice Information per 9VAC25-31-280.B: All pertinent information is on file, and may be inspected and copied by contacting Dawn Jeffries at: DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801, Telephone No. (540) 574-7898, dawn.jeffries@deq.virginia.gov.

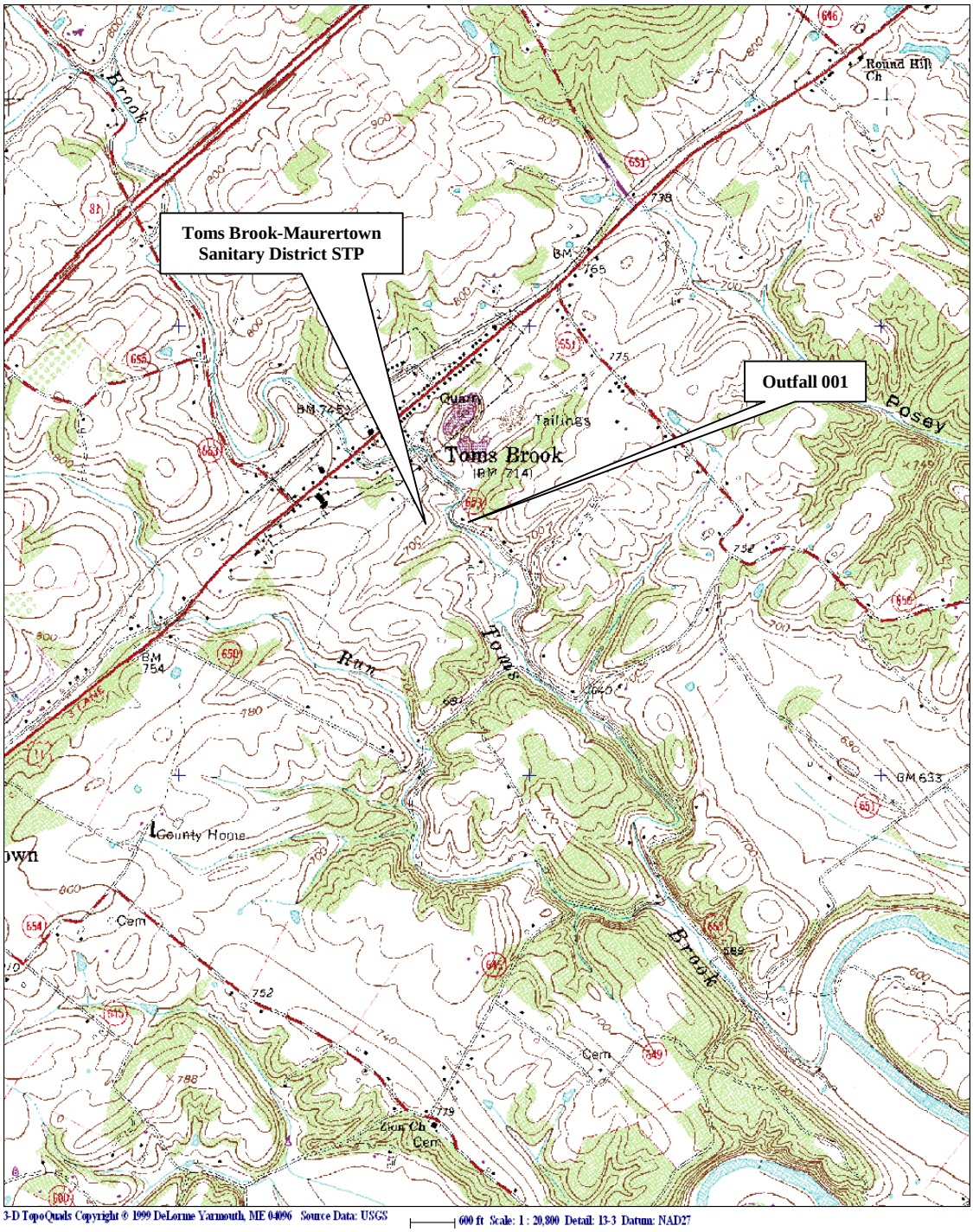
    Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

30. Historical Record:
    Date permit first issued: January 1, 1980
    Design flow at issuance: 0.189 MGD
    Date facility began discharging: April 30, 1980
    CTO for facility upgrade to UV disinfection: September 5, 2013

APPENDIX A

DISCHARGE LOCATION AND RECEIVING WATERS INFORMATION

This facility discharges to Toms Brook in Shenandoah County. The locations of the STP and Outfall 001 are shown on the topographic map below.



PLANNING INFORMATION

Relevant points of interest within the watershed and in the vicinity of the discharge are shown on the Water Quality Assessments Review table below.

WATER QUALITY ASSESSMENTS REVIEW
POTOMAC-SHENANDOAH RIVER BASIN
5/5/2014

IMPAIRED SEGMENTS

SEGMENT ID	STREAM	SEGMENT START	SEGMENT END	SEGMENT LENGTH	PARAMETER
B50R-01-BEN	Toms Brook	7.18	0.00	7.18	Benthic
B50R-03-BAC	Pugh's Run	5.86	0.00	5.86	Fecal Coliform, E-coli
B50R-03-BEN	Pugh's Run	5.86	0.00	5.86	Benthic
B50R-04-BAC	North Fork Shenandoah Rive	37.27	0.00	24.95	E-coli
B50R-05-BAC	Spring Hollow	6.36	0.00	6.36	E-coli
B51R-01-BAC	Tumbling Run	5.05	0.90	4.15	Fecal Coliform
B52R-04-BAC	Cedar Creek	18.54	11.09	7.45	E-coli

PERMITS

PERMIT	FACILITY	STREAM	RIVER MILE	LAT	LONG	WBID
VA0061549	**Toms Brook-Maurertown**	**Toms Brook**	**2.17**	**385634**	**0782615**	**VAV-B50R**
VA0020311	Strasburg STP	N.F. Shenandoah River	11.94	385827	0782120	VAV-B51R
VA0026468	Woodstock STP	N.F. Shenandoah River	45.6	385310	0782848	VAV-B50R
VA0052621	Valley Milk Products	Town Run	1.76	385906	0782136	VAV-B51R
VA0076856	Wilcohess LLC - Travel Plaza	Snapps Run X Trib	0.66	385803	0782603	VAV-B51R
VA0091201	Orndorff Rainbow Trout Farr	Orndorff Spring Branch	0.15	385928	0783042	VAV-B52R

MONITORING STATIONS

STREAM	NAME	RIVER MILE	RECORD	LAT	LONG
Jordan Run	1BJDN000.29	0.29	3/24/2003	385543	0782553
Little Passage Creek	1BLPC004.59	4.59	8/12/1987	385640	0782120
N.F. Shenandoah River	1BNFS026.98	26.98	3/31/2005	385451	0782435
N.F. Shenandoah River	1BNFS043.06	43.06	7/1/1999	385239	0782802
N.F. Shenandoah River	1BNFS011.81	11.81	5/20/2005	385822	0782104
N.F. Shenandoah River	1BNFS012.98	12.98	7/18/1968	385905	0782203
N.F. Shenandoah River	1BNFS014.26	14.26	4/3/2006	385844	0782259
Pugh's Run	1BPGH000.60	0.6	7/1/1991	385414	0782911
Spring Hollow	1BXEL000.55	0.55	4/15/2007	385256	0782904
Toms Brook	1BTMB001.87	1.87	6/30/2003	385624	0782602
Toms Brook	1BTMB002.22	2.22	6/3/1998	385637	0782613
Tumbling Run	1BTBL000.26	0.26	7/1/1991	385841	0782313
Tumbling Run	1BTBL001.27	1.27	7/1/1999	385902	0782358
N.F. Shenandoah River	1BNFS029.69	29.69	Jul-01	385434	0782535
N.F. Shenandoah River	1BNFS024.21	24.21	4/25/2005	385540	0782351
Orndorff Spring Branch	1BXOS000.01	0.01	8/9/2000	385926	0783042
Toms Brook	1BTMB000.54	0.54	7/1/1991	385536	0782529
Toms Brook	1BTMB000.70	0.7	3/24/2003	385544	0782537
Cedar Creek	1BCDR043.01	43.01	5/1/1996	385859	0783131
N.F. Shenandoah River	1BNFS020.11	20.11	6/13/2007	385658	0782321
Pugh's Run	1BPGH000.29	0.29	4/16/2009	385409	0782904

PUBLIC WATER SUPPLY INTAKES

OWNER	STREAM	RIVER MILE
STRASBURG, TOWN	NORTH FORK SHENAND	13.25

WATER QUALITY MANAGEMENT PLANNING REGULATION

Is this discharge addressed in the WQMP regulation? **No**

If Yes, what effluent limitations or restrictions does the WQMP regulation impose on this discharge?

PARAMETER	ALLOCATION

WATERSHED NAME

VAV-B50R North Fork Shenandoah River/Narrow Passage Creek

FLOW FREQUENCY DETERMINATION

Toms Brook-Maurertown Sanitary District discharges to Toms Brook near Toms Brook, VA. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit reissuance.

The USGS and VDEQ conducted flow measurements on Toms Brook in 1952, 1953, 1954, 1969, and from 1995 to 1999, and 2003. The measurements were made just upstream of the subject discharge point, at US Route 11, at Toms Brook, VA. The measurements were correlated with the same-day daily mean values from the continuous record gage on Cedar Creek near Winchester, VA (#01634500). The correlation was done by plotting the measurements and the daily mean values on a log/log graph, and performing a regression analysis. The measurements correlated well with the Cedar Creek gage. A best-fit line (and equation) for the data set was established. The required flow frequencies for Toms Brook at the Toms Brook-Maurertown Sanitary District discharge point were then calculated using the equation of the line and the flow frequencies for the entire period of record of the Cedar Creek gage. The flow frequencies for the Cedar Creek gage and the calculated flow frequencies for the measurement site/discharge point are presented below:

Cedar Creek near Winchester, VA (#01634500):

Drainage Area = 102 mi^2

1Q30 =	3.1 cfs	High Flow 1Q10 =	12.1 cfs
1Q10 =	4.09 cfs	High Flow 7Q10 =	13.7 cfs
7Q10 =	4.60 cfs	High Flow 30Q10 =	22.0 cfs
30Q10 =	5.96 cfs	HM =	24.9 cfs
30Q5 =	7.02 cfs		

Toms Brook at US Route 11, at Toms Brook, VA (#01633730) and at Toms Brook-Maurertown Sanitary District discharge point:

Drainage Area = 9.35 mi^2

1Q30 =	0.25 cfs	(0.16 mgd)	High Flow 1Q10 =	0.90 cfs	(0.58 mgd)
1Q10 =	0.32 cfs	(0.21 mgd)	High Flow 7Q10 =	1.01 cfs	(0.66 mgd)
7Q10 =	0.36 cfs	(0.23 mgd)	High Flow 30Q10 =	1.59 cfs	(1.03 mgd)
30Q10 =	0.46 cfs	(0.30 mgd)	HM =	1.79 cfs	(1.16 mgd)
30Q5 =	0.54 cfs	(0.35 mgd)			

The high flow months are January through May.

The analysis assumes that there are no significant discharges, withdrawals, or springs that may influence the flow in Manassas Run upstream of the discharge point.

REVIEWER: BWC
DATE: 3-11-14

EFFLUENT/STREAM MIXING EVALUATION

Mixing zone predictions were made with the Virginia DEQ Mixing Zone Analysis Version 2.1 program. The predictions are based on the discharge and receiving stream characteristics, and are presented below.

Annual	**Wet Season**
Effluent Flow = 0.189 MGD Stream 7Q10 = 0.23 MGD Stream 30Q10 = 0.30 MGD Stream 1Q10 = 0.21 MGD Stream slope = 0.003 ft/ft Stream width = 7 ft Bottom scale = 4 Channel scale = 1	Effluent Flow = 0.189 MGD Stream 7Q10 = 0.66 MGD Stream 30Q10 = 1.03 MGD Stream 1Q10 = 0.58 MGD Stream slope = 0.003 ft/ft Stream width = 7 ft Bottom scale = 4 Channel scale = 1
---------- Mixing Zone Predictions @ 7Q10 Depth = .3444 ft Length = 83.95 ft Velocity = .269 ft/sec Residence Time = .0036 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.	---------- Mixing Zone Predictions @ 7Q10 Depth = .5365 ft Length = 56.17 ft Velocity = .35 ft/sec Residence Time = .0019 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.
---------- Mixing Zone Predictions @ 30Q10 Depth = .3792 ft Length = 77.01 ft Velocity = .2852 ft/sec Residence Time = .0031 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.	---------- Mixing Zone Predictions @ 30Q10 Depth = .6755 ft Length = 45.32 ft Velocity = .399 ft/sec Residence Time = .0013 days Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.
---------- Mixing Zone Predictions @ 1Q10 Depth = .334 ft Length = 86.27 ft Velocity = .2641 ft/sec Residence Time = .0907 hours Recommendation: A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.	---------- Mixing Zone Predictions @ 1Q10 Depth = .5039 ft Length = 59.5 ft Velocity = .3375 ft/sec Residence Time = .049 hours Recommendation: A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

MEMORANDUM
DEPARTMENT OF ENVIRONMENTAL QUALITY
VALLEY REGIONAL OFFICE
4411 Early Road – P.O. Box 3000 Harrisonburg, VA 22801

SUBJECT: Site Visit for Reissuance of VPDES Permit No. VA0061549, Toms Brook-Maurertown Sanitary District, Shenandoah County

TO: Permit Processing File

FROM: Dawn Jeffries

DATE: June 6, 2014

On June 6, 2014 the writer performed a site visit at the existing facility to evaluate the characteristics of the receiving stream for modeling purposes. Rodney McClain and Larry Holler were also present. Photos below show the receiving stream at the outfall and at several downstream points. Stream conditions and channel characteristics were consistent with those noted in the flow model.

Outfall to Toms Brook


Toms Brook at 747 bridge, below confluence with Jordan Run, upstream view


Toms Brook at 747 bridge, below confluence with Jordan Run, downstream view

APPENDIX B

EFFLUENT SCREENING AND EFFLUENT LIMITATIONS

EFFLUENT LIMITATIONS

A comparison of technology and water quality-based limits was performed and the most stringent limits were selected, as summarized in the table below.

Outfall 001 **Final Limits** **Design Flow: 0.189 MGD**

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average		Maximum		Frequency	Sample Type
Flow (MGD)	1	NL		NL		Continuous	TIRE
---	---	Monthly Average		Weekly Average		---	---
BOD_5	2,4	30 mg/L	21 kg/d	45 mg/L	32 kg/d	1/Week	8 HC
TSS	2,6	30 mg/L	21 kg/d	45 mg/L	32 kg/d	1/Month	8 HC
Ammonia-N (Jun-Dec)(mg/L)	3	5.0		6.8		1/Week	8 HC
Effluent Chlorine (TRC)(mg/L)*	3	0.016		0.018		3/Day @ 4-Hr Intervals	Grab
E. coli (N/100 mL) (geometric mean)	3	126		NA		4/Month in any single calendar month* or 4/Month** 10 am to 4 pm	Grab
---	---	Minimum		Maximum		---	---
TKN (mg/L)	5	NA		NL		1/Year	Grab
Nitrite + Nitrate (mg/L)	5	NA		NL		1/Year	Grab
Total Nitrogen (mg/L)	5	NA		NL		1/Year	Calculated
Total Phosphorus (mg/L)	5	NA		NL		1/Year	Grab
pH (S.U.)	3	6.5		9.5		1/Day	Grab
Dissolved Oxygen (mg/L)	3,4	6.7		NA		1/Day	Grab
Contact Chlorine (TRC)(mg/L)*	3,7	1.0		NA		3/Day @ 4-Hr Intervals	Grab

NL = No Limitation, monitoring required *NA = Not Applicable*
TIRE = Totalizing, Indicating, and Recording equipment *8 HC = 8-Hour Composite*
4/Month = 4 samples taken monthly, with at least 1 sample taken each calendar week
4/Month in any single calendar month = 4 samples taken monthly, with at least 1 sample taken each calendar week, in any calendar month and reported with the December DMR due January 10th of every year
1/Year = Annual sampling with the results submitted with the DMRs due January 10th of each year

* = *Applicable only when chlorination is used for disinfection*
** = *Applicable if an alternative to chlorination is used for disinfection.*

BASIS DESCRIPTIONS

1. *VPDES Permit Regulation (9VAC25-31)*
2. *Federal Effluent Requirements (Secondary Treatment Regulation - 40CFR133)*
3. *Water Quality Standards (9VAC25-260)*
4. *Regional Stream Model simulation*
5. *Guidance Memo No. 14-2011*
6. *Toms Brook Sediment TMDL, 4/26/04*
7. *Best Professional Judgment (BPJ)*

LIMITING FACTORS – OVERVIEW:
The following potential limiting factors have been considered in developing this permit and fact sheet:

Water Quality Management Plan Regulation (WQMP) (9VAC25-720)	
A. TMDL limits	TSS
B. Non-TMDL WLAs	None
C. CBP (TN & TP) WLAs	None
Federal Effluent Guidelines	BOD_5, TSS, pH
BPJ/Agency Guidance limits	TRC (contact)
Water Quality-based Limits - numeric	BOD_5, DO, TRC (effluent), E. coli, pH, Ammonia-N
Water Quality-based Limits - narrative	None
Technology-based Limits (9VAC25-40-70)	None
Whole Effluent Toxicity (WET)	Not Applicable
Storm Water Limits	Not Applicable

EVALUATION OF THE EFFLUENT – CONVENTIONAL POLLUTANTS:
A Regional Stream Model was previously run for this discharge. At this reissuance the discharge for this facility was remodeled using the Regional Stream Model (v 4.11) due to new stream flow information. The modeling information is maintained in the DEQ receiving stream DO model file.

The receiving stream at the discharge point is classified as Tier 1. The values below were demonstrated to maintain the DO WQS of 5.0 mg/L in Toms Brook.

$CBOD_5$ = 25 mg/L
TKN = 9.3 mg/L
DO = 6.7 mg/L

Because a $CBOD_5$ concentration of 25 mg/L is equivalent to a BOD_5 concentration of 30 mg/L, a BOD_5 average permit limit of 30 mg/L has been imposed in the permit. The previous permit imposed an average BOD_5 limit of 30 mg/L for both the annual season and the wet season. The seasonal designation was at the request of the permittee to allow reduced monitoring during the wet season

The effluent TKN concentration is equal to more than twice the Ammonia-N WLAc. Per Department guidance, TKN limits are not required when the modeled TKN effluent concentration is more than twice the Ammonia-N WLA. As such, the Ammonia-N limits (based on chronic toxicity) applied to the permit are deemed adequate for ensuring compliance with the modeled TKN values, and no TKN limits have been included in this permit.

The existing DO limit of 6.7 mg/L is consistently met and has been carried forward from the previous permit. The monitoring frequency has been increased from 1/Week to 1/Day because data indicates the effluent DO levels sometimes fall within 0.5 mg/L of the limit.

The TSS limits are consistent with the Secondary Treatment Regulation and have been carried forward from the previous permit. The TSS limits comply with the facility's sediment WLA of 7.83 metric tons in the Toms Brook TMDL.

The pH limits reflect the WQS for pH in the receiving stream and have been carried forward from the previous permit.

EVALUATION OF THE EFFLUENT – DISINFECTION:

The E. coli limits have been carried forward from the previous permit. These limits reflect the current WQS for E. coli in the receiving stream. The monitoring frequency of 1/Week has also been carried forward (applied as 4/Month) based on compliance history and permittee request. Chlorine limits are also specified in the permit, but are only applicable should the facility need to utilize chlorine disinfection. If chlorine disinfection is used, E. coli monitoring is required 4/Month in one calendar month of each year to further demonstrate adequate disinfection.

EVALUATION OF THE EFFLUENT – NUTRIENTS:

In accordance with § 62.1-44.19:14.C.5. of the Code of Virginia, TN and TP baselines were previously established for this facility to represent nutrient discharge allowances as of July 1, 2005. These baselines are used as a limiting factor should the facility ever expand or have a significant increase in effluent TN or TP concentrations. For municipal facilities, the baselines are based on the permitted design capacity of the facility. The established permitted design capacities for TN and TP are as follows:

TN = 10,764 lb/yr
TP = 1,439 lb/yr

The "permitted design capacity" or "permitted capacity" in terms of annual mass load of total nitrogen or total phosphorus discharged by this non-significant discharger is assumed to be that achieved at the current design flow using the currently installed technology.

Nonsignificant dischargers are subject to aggregate WLAs for TN, TP, and Sediment under the TMDL for the Chesapeake Bay. In accordance with Guidance Memo No. 14-2011, monitoring of TN and TP is required for this permit term in order to verify the aggregate WLAs.

MONITORING REDUCTION FOR BOD_5 & AMMONIA-N

This facility currently has no wet season monitoring for Ammonia-N, and has baseline (3/Week) wet season monitoring for BOD_5. It has reduced monitoring during Jun-Dec for both BOD_5 and Ammonia-N based on evaluation of effluent data in previous permit terms. At the permittee's request, this facility was considered for continuation of the reduced monitoring for BOD_5 (Jun-Dec) and Ammonia-N (Jun-Dec) and also for a reduction in the monitoring frequency for $CBOD_5$ (Jan-May). To qualify for reduced monitoring, a facility must not have been issued any Warning Letters or NOVs, or be under any Consent Orders or Decrees within the past three years. The facility has had no compliance or enforcement problems in the past three years and is therefore eligible for this reduction.

As specified in the VPDES Permit Manual, the following procedures were used in the monitoring reduction analysis.

BOD_5:

The three-year average of Jan-May data was calculated. The average concentration for the past three years is 4.0 mg/L and the permit limit is 30 mg/L. Because the ratio of the average BOD_5 concentration to the monthly average permit limit was less than 25%, the monitoring frequency has been reduced from 3/Week to 1/Week.

The three-year average of Jun-Dec data was also calculated. The average concentration for the past three years is 2.2 mg/L and the permit limit is 30 mg/L. Because the ratio of the average BOD_5 effluent concentrations to the monthly average permit limits was less than 25%, the monitoring frequency of 1/Week has been carried forward. Since the requirements for BOD_5 are identical for all months of the year, they are applied as one year-round condition.

Ammonia-N:

The average Ammonia-N (Jun-Dec) concentration for the past three years is 0.52 mg/L and the permit limit is 5.0 mg/L. Because the ratio of the average effluent concentrations to the monthly average permit limits was less than 25%, the monitoring frequency of 1/Week have been carried forward.

The permittee is expected to take all appropriate measures to control both the average level of pollutants of concern in the discharge as well as the variability of such parameters in the discharge, regardless of any reductions in monitoring frequencies granted from the baseline levels. A special condition has been included in the permit that requires increased monitoring for Ammonia-N and BOD_5 if the facility is issued a Notice of Violation for either parameter.

EVALUATION OF THE EFFLUENT – TOXICS:

Stream: Water quality data for the receiving stream were obtained from Ambient Monitoring Station No. 1BTMB000.54 on Toms Brook approximately 1.6 miles downstream of the discharge point at the Rte 747 Bridge. The "Wet Season" or "High Flow" months are January through May.

Stream Information			
90% Annual Temp (°C) =	21.6	90% pH (SU) =	8.6
90% Wet Temp (°C) =	15.8	10% pH (SU) =	7.9
Mean Hardness (mg/L) =	257		

All toxic pollutants, including Ammonia-N and TRC, are assumed absent in the receiving stream because there are no data for these parameters directly above the discharge.

Discharge: The pH and temperature data were obtained from data submitted by the permittee. The hardness value has been carried forward from the previous fact sheet.

Effluent Information			
90% Annual Temp (°C) =	22.5	90% pH (SU) =	7.53
90% Wet Temp (°C) =	18.1	10% pH (SU) =	6.79
Mean Hardness (mg/L) =	332		

WQC and WLAs were calculated for the WQS parameters for which data are available. The resulting WQC and WLAs are presented in this appendix. Current agency guidelines recommends the evaluation of toxic pollutant limits for TRC and Ammonia-N be based on default effluent concentrations of 20 mg/L and 9 mg/L, respectively. The effluent data were analyzed per the protocol for evaluation of effluent toxic pollutants included in this appendix with the following results:

- TRC: More stringent limits were determined to be necessary. This change is due to decreased receiving stream flows and an increase in the monitoring frequency from 1/Day to 3/Day, as specified in Guidance Memo No. 14-2003. Because this facility currently uses UV disinfection, a schedule of compliance for meeting the more stringent limits has not been provided.
- Ammonia-N: No limits for Ammonia-N (Jan-May) were determined to be necessary. More stringent Ammonia-N (Jun-Dec) limits have been determined to be necessary. This change is due to decreased receiving stream flows and slightly increased effluent pH values. Based on the facility's Ammonia-N effluent data, a schedule of compliance for meeting the more stringent limits has not been provided.

WQC-WLA SPREADSHEET INPUT

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name: Toms Brook Sanitary District
Receiving Stream: Toms Brook
Permit No.: VA0061549
Date: 9/25/2014
Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information			Effluent Information	
Mean Hardness (as CaCO3) =	257 mg/L	1Q10 (Annual) =	0.21 MGD	Annual	- 1Q10 Flow =	100 %	Mean Hardness (as CaCO3) =	332 mg/L
90% Temperature (Annual) =	21.6 deg C	7Q10 (Annual) =	0.23 MGD		- 7Q10 Flow =	100 %	90% Temp (Annual) =	22.5 deg C
90% Temperature (Wet season) =	15.8 deg C	30Q10 (Annual) =	0.3 MGD		- 30Q10 Flow =	100 %	90% Temp (Wet season) =	18.1 deg C
90% Maximum pH =	8.6 SU	1Q10 (Wet season) =	0.58 MGD	Wet Season	- 1Q10 Flow =	100 %	90% Maximum pH =	7.53 SU
10% Maximum pH =	7.9 SU	30Q10 (Wet season) =	1.03 MGD		- 30Q10 Flow =	100 %	10% Maximum pH =	6.79 SU
Tier Designation =	1	30Q5 =	0.35 MGD				Current Discharge Flow =	0.18900 MGD
Public Water Supply (PWS) Y/N? =	N	Harmonic Mean =	1.16 MGD				Discharge Flow for Limit Analysis =	0.18900 MGD
V(alley) or P(iedmont)? =	V							
Trout Present Y/N? =	N							
Early Life Stages Present Y/N? =	Y							

Footnotes:

1. All concentrations expressed as micrograms/ liter (ug/ l), unless noted otherwise.
2. All flow values are expressed as Million Gallons per Day (MGD).
3. Discharge volumes are highest monthly average or 2C maximum for Industries and design flows for Municipals.
4. Hardness expressed as mg/ l CaCO3. Standards calculated using Hardness values in the range of 25-400 mg/ l CaCO3.
5. "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.
6. Carcinogen "Y" indicates carcinogenic parameter.
7. Ammonia WQSs selected from separate tables, based on pH and temperature.
8. Metals measured as Dissolved, unless specified otherwise.
9. WLA = Waste Load Allocation (based on standards).
10. WLA = Waste Load Allocation (based on standards).
11. WLAs are based on mass balances (less background, if data exist).
12. Acute - 1 hour avg. concentration not to be exceeded more than 1/ 3 years.
13. Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/ 3 years.
14. Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, and Harmonic Mean for Carcinogens. Actual flows employed are a function of the mixing analysis and may be less than the actual flows.
15. Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

WQC-WLA SPREADSHEET OUTPUT

Facility Name: Toms Brook Sanitary District
Permit No.: VA0061549
Receiving Stream: Toms Brook
Date: 9/25/2014

WATER QUALITY CRITERIA
0.189 MGD Discharge Flow - Mix per "Mixer"

NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS
0.189 MGD Discharge - Mix per "Mixer"

Toxic Parameter and Form	Carcinogen?	Aquatic Protection Acute	Aquatic Protection Chronic	Human Health Public Water Supplies	Human Health Other Surface Waters	Non-Antidegradation WLA Aquatic Protection Acute	Non-Antidegradation WLA Aquatic Protection Chronic	Non-Antidegradation WLA Human Health
Ammonia-N (Annual)	N	1.2E+01 mg/L	1.8E+00 mg/L	None	None	2.5E+01 mg/L	4.6E+00 mg/L	N/A
Ammonia-N (Wet Season)	N	7.8E+00 mg/L	1.7E+00 mg/L	None	None	3.2E+01 mg/L	1.1E+01 mg/L	N/A
Chlorine, Total Residual	N	1.9E-02 mg/L	1.1E-02 mg/L	None	None	4.0E-02 mg/L	2.4E-02 mg/L	N/A

PROTOCOL FOR THE EVALUATION OF THE EFFLUENT – TOXIC POLLUTANTS

Toxic pollutants were evaluated in accordance with OWP Guidance Memo No. 00-2011. Acute and Chronic WLAs (WLA_a and WLA_c) were analyzed according to the protocol below using a statistical approach (STAT.exe) to determine the necessity and magnitude of limits. Human Health WLAs (WLA_{hh}) were analyzed according to the same protocol through a simple comparison with the effluent data. If the WLA_{hh} exceeded the effluent datum or data mean, no limits were required. If the effluent datum or data mean exceeded the WLA_{hh}, the WLA_{hh} was imposed as the limit.

Since there are no data available immediately upstream of this discharge, all other upstream (background) pollutant concentrations are assumed to be "0".

The steps used in evaluating the effluent data are as follows:

A. If all data are reported as "below detection" or < the required Quantification Level (QL), and at least one detection level is ≤ the required QL, then the pollutant is considered to be not significantly present in the discharge and no further monitoring is required.

B. If all data are reported as "below detection", and all detection levels are > the required QL, then an evaluation is performed in which the pollutant is assumed present at the lowest reported detection level.

   B.1. If the evaluation indicates that no limits are needed, then the existing data set is adequate and no further monitoring is required.
   B.2. If the evaluation indicates that limits are needed, then the existing data set is inadequate to make a determination and additional monitoring is required.

C. If any data value is reported as detectable at or above the required QL, then the data are adequate to determine whether effluent limits are needed.

   C.1. If the evaluation indicates that no limits are needed, then no further monitoring is required.
   C.2. If the evaluation indicates that limits are needed, then the limits and associated requirements are specified in the draft permit.
   C.3. If the evaluation indicates that limits are needed, but the metals data are reported as a form other than "Dissolved", then the existing data set is inadequate to make a determination and additional monitoring is required.
   C.4. (Exception for total sulfide and dissolved sulfide only) If any data value for total sulfide or dissolved sulfide is reported at or above the required QL, then additional monitoring requirements are specified in the draft permit for dissolved sulfide and for hydrogen sulfide.
   C.5. (Exception for hydrogen sulfide data only) If the evaluation indicates that limits are needed, then a requirement to submit a Hydrogen Sulfide Minimization Plan for approval no later than 90 days following the effective date of the permit is specified in the draft permit.

TOXLARGE

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
METALS					
Antimony, dissolved	7440-36-0	0.2	Previously evaluated. No further monitoring required.	---	---
Arsenic, dissolved	7440-38-2	1.0	Previously evaluated. No further monitoring required.	---	---
Barium, dissolved	7440-39-3	---	Applicable to PWS waters only	---	---
Cadmium, dissolved	7440-43-9	0.3	Previously evaluated. No further monitoring required.	---	---
Chromium III, dissolved	16065-83-1	0.5	Previously evaluated. No further monitoring required.	---	---
Chromium VI, dissolved	18540-29-9	0.5	Previously evaluated. No further monitoring required.	---	---
Chromium, Total	7440-47-3	---	Applicable to PWS waters only	---	---
Copper, dissolved	7440-50-8	0.5	Previously evaluated. No further monitoring required.		
Iron, dissolved	7439-89-6	1.0	Applicable to PWS waters only	---	---
Lead, dissolved	7439-92-1	0.5	Previously evaluated. No further monitoring required.	---	---
Manganese, dissolved	7439-96-5	0.2	Applicable to PWS waters only	---	---
Mercury, dissolved	7439-97-6	1.0	Previously evaluated. No further monitoring required.	---	---
Nickel, dissolved	7440-02-0	0.5	Previously evaluated. No further monitoring required.	---	---
Selenium, total recoverable	7782-49-2	2.0	Previously evaluated. No further monitoring required.	---	---
Silver, dissolved	7440-22-4	0.2	Previously evaluated. No further monitoring required.	---	---
Thallium, dissolved	7440-28-0	---	Previously evaluated. No further monitoring required.	---	---
Zinc, dissolved	7440-66-6	2.0	Previously evaluated. No further monitoring required.	---	---
PESTICIDES/PCBS					
Aldrin [C]	309-00-2	0.05	Previously evaluated. No further monitoring required.	---	---
Chlordane [C]	57-74-9	0.2	Previously evaluated. No further monitoring required.	---	---
Chlorpyrifos	2921-88-2	(5)	Previously evaluated. No further monitoring required.	---	---
DDD [C]	72-54-8	0.1	Previously evaluated. No further monitoring required.	---	---
DDE [C]	72-55-9	0.1	Previously evaluated. No further monitoring required.	---	---
DDT [C]	50-29-3	0.1	Previously evaluated. No further monitoring required.	---	---
Demeton	8065-48-3	---	Previously evaluated. No further monitoring required.	---	---
Diazinon	333-41-5	---	**NEW REQUIREMENT. Needs to be sampled.**	---	---
Dieldrin [C]	60-57-1	0.1	Previously evaluated. No further monitoring required.	---	---
Alpha-Endosulfan	959-98-8	0.1	Previously evaluated. No further monitoring required.	---	---
Beta-Endosulfan	33213-65-9	0.1	Previously evaluated. No further monitoring required.	---	---
Alpha-Endosulfan + Beta-Endosulfan		---	Previously evaluated. No further monitoring required.	---	---
Endosulfan Sulfate	1031-07-8	0.1	Previously evaluated. No further monitoring required.	---	---
Endrin	72-20-8	0.1	Previously evaluated. No further monitoring required.	---	---
Endrin Aldehyde	7421-93-4	---	Previously evaluated. No further monitoring required.	---	---
Guthion	86-50-0	---	Previously evaluated. No further monitoring required.	---	---
Heptachlor [C]	76-44-8	0.05	Previously evaluated. No further monitoring required.	---	---
Heptachlor Epoxide [C]	1024-57-3	---	Previously evaluated. No further monitoring required.	---	---
Hexachlorocyclohexane Alpha-BHC [C]	319-84-6	---	Previously evaluated. No further monitoring required.	---	---
Hexachlorocyclohexane Beta-BHC [C]	319-85-7	---	Previously evaluated. No further monitoring required.	---	---
Hexachlorocyclohexane Gamma-BHC (synonym = Lindane)	58-89-9	---	Previously evaluated. No further monitoring required.	---	---
Kepone	143-50-0	---	Previously evaluated. No further monitoring required.	---	---
Malathion	121-75-5	---	Previously evaluated. No further monitoring required.	---	---

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
Methoxychlor	72-43-5	---	Previously evaluated. No further monitoring required.	---	---
Mirex	2385-85-5	---	Previously evaluated. No further monitoring required.	---	---
Parathion	56-38-2	---	Previously evaluated. No further monitoring required.	---	---
PCB Total [C]	1336-36-3	7.0	Previously evaluated. No further monitoring required.	---	---
Toxaphene [C]	8001-35-2	5.0	Previously evaluated. No further monitoring required.	---	---
BASE NEUTRAL EXTRACTABLES					
Acenaphthene	83-32-9	10.0	Previously evaluated. No further monitoring required.	---	---
Anthracene	120-12-7	10.0	Previously evaluated. No further monitoring required.	---	---
Benzidine [C]	92-87-5	---	Previously evaluated. No further monitoring required.	---	---
Benzo (a) anthracene [C]	56-55-3	10.0	Previously evaluated. No further monitoring required.	---	---
Benzo (b) fluoranthene [C]	205-99-2	10.0	Previously evaluated. No further monitoring required.	---	---
Benzo (k) fluoranthene [C]	207-08-9	10.0	Previously evaluated. No further monitoring required.	---	---
Benzo (a) pyrene [C]	50-32-8	10.0	Previously evaluated. No further monitoring required.	---	---
Bis 2-Chloroethyl Ether [C]	111-44-4	---	Previously evaluated. No further monitoring required.	---	---
Bis 2-Chloroisopropyl Ether	108-60-1	---	Previously evaluated. No further monitoring required.	---	---
Bis-2-Ethylhexyl Phthalate [C]	117-81-7	10.0	Previously evaluated. No further monitoring required.	---	---
Butyl benzyl phthalate	85-68-7	10.0	Previously evaluated. No further monitoring required.	---	---
2-Chloronaphthalene	91-58-7	---	Previously evaluated. No further monitoring required.	---	---
Chrysene [C]	218-01-9	10.0	Previously evaluated. No further monitoring required.	---	---
Dibenz(a,h)anthracene [C]	53-70-3	20.0	Previously evaluated. No further monitoring required.	---	---
1,2-Dichlorobenzene	95-50-1	10.0	Previously evaluated. No further monitoring required.	---	---
1,3-Dichlorobenzene	541-73-1	10.0	Previously evaluated. No further monitoring required.	---	---
1,4-Dichlorobenzene	106-46-7	10.0	Previously evaluated. No further monitoring required.	---	---
3,3-Dichlorobenzidine [C]	91-94-1	---	Previously evaluated. No further monitoring required.	---	---
Diethyl phthalate	84-66-2	10.0	Previously evaluated. No further monitoring required.	---	---
Dimethyl phthalate	131-11-3	---	Previously evaluated. No further monitoring required.	---	---
Di-n-Butyl Phthalate	84-74-2	10.0	Previously evaluated. No further monitoring required.	---	---
2,4-Dinitrotoluene	121-14-2	10.0	Previously evaluated. No further monitoring required.	---	---
1,2-Diphenylhydrazine [C]	122-66-7	---	Previously evaluated. No further monitoring required.	---	---
Fluoranthene	206-44-0	10.0	Previously evaluated. No further monitoring required.	---	---
Fluorene	86-73-7	10.0	Previously evaluated. No further monitoring required.	---	---
Hexachlorobenzene [C]	118-74-1	---	Previously evaluated. No further monitoring required.	---	---
Hexachlorobutadiene [C]	87-68-3	---	Previously evaluated. No further monitoring required.	---	---
Hexachlorocyclopentadiene	77-47-4	---	Previously evaluated. No further monitoring required.	---	---
Hexachloroethane [C]	67-72-1	---	Previously evaluated. No further monitoring required.	---	---
Indeno(1,2,3-cd)pyrene [C]	193-39-5	20.0	Previously evaluated. No further monitoring required.	---	---
Isophorone [C]	78-59-1	10.0	Previously evaluated. No further monitoring required.	---	---
Nitrobenzene	98-95-3	10.0	Previously evaluated. No further monitoring required.	---	---
N-Nitrosodimethylamine [C]	62-75-9	---	Previously evaluated. No further monitoring required.	---	---
N-Nitrosodi-n-propylamine [C]	621-64-7	---	Previously evaluated. No further monitoring required.	---	---
N-Nitrosodiphenylamine [C]	86-30-6	---	Previously evaluated. No further monitoring required.	---	---
Pyrene	129-00-0	10.0	Previously evaluated. No further monitoring required.	---	---
1,2,4-Trichlorobenzene	120-82-1	10.0	Previously evaluated. No further monitoring required.	---	---

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
VOLATILES					
Acrolein	107-02-8	---	Previously evaluated. No further monitoring required.	---	---
Acrylonitrile [C]	107-13-1	---	Previously evaluated. No further monitoring required.	---	---
Benzene [C]	71-43-2	10.0	Previously evaluated. No further monitoring required.	---	---
Bromoform [C]	75-25-2	10.0	Previously evaluated. No further monitoring required.	---	---
Carbon Tetrachloride [C]	56-23-5	10.0	Previously evaluated. No further monitoring required.	---	---
Chlorobenzene	108-90-7	50.0	Previously evaluated. No further monitoring required.	---	---
Chlorodibromomethane [C]	124-48-1	10.0	Previously evaluated. No further monitoring required.	---	---
Chloroform	67-66-3	10.0	Previously evaluated. No further monitoring required.	---	---
Dichlorobromomethane [C]	75-27-4	10.0	Previously evaluated. No further monitoring required.	---	---
1,2-Dichloroethane [C]	107-06-2	10.0	Previously evaluated. No further monitoring required.	---	---
1,1-Dichloroethylene	75-35-4	10.0	Previously evaluated. No further monitoring required.	---	---
1,2-trans-dichloroethylene	156-60-5	---	Previously evaluated. No further monitoring required.	---	---
1,2-Dichloropropane [C]	78-87-5	---	Previously evaluated. No further monitoring required.	---	---
1,3-Dichloropropene [C]	542-75-6	---	Previously evaluated. No further monitoring required.	---	---
Ethylbenzene	100-41-4	10.0	Previously evaluated. No further monitoring required.	---	---
Methyl Bromide	74-83-9	---	Previously evaluated. No further monitoring required.	---	---
Methylene Chloride [C]	75-09-2	20.0	Previously evaluated. No further monitoring required.	---	---
1,1,2,2-Tetrachloroethane [C]	79-34-5	---	Previously evaluated. No further monitoring required.	---	---
Tetrachloroethylene	127-18-4	10.0	Previously evaluated. No further monitoring required.	---	---
Toluene	10-88-3	10.0	Previously evaluated. No further monitoring required.	---	---
1,1,2-Trichloroethane [C]	79-00-5	---	Previously evaluated. No further monitoring required.	---	---
Trichloroethylene [C]	79-01-6	10.0	Previously evaluated. No further monitoring required.	---	---
Vinyl Chloride [C]	75-01-4	10.0	Previously evaluated. No further monitoring required.	---	---
RADIONUCLIDES					
Beta Particle & Photon Activity (mrem/yr)	N/A	---	Applicable to PWS waters only	---	---
Combined Radium 226 and 228 (pCi/L)	N/A	---	Applicable to PWS waters only	---	---
Gross Alpha Particle Activity (pCi/L)	N/A	---	Applicable to PWS waters only	---	---
Uranium	N/A	---	Applicable to PWS waters only	---	---
ACID EXTRACTABLES					
2-Chlorophenol	95-57-8	10.0	Previously evaluated. No further monitoring required.	---	---
2,4-Dichlorophenol	120-83-2	10.0	Previously evaluated. No further monitoring required.	---	---
2,4-Dimethylphenol	105-67-9	10.0	Previously evaluated. No further monitoring required.	---	---
2,4-Dinitrophenol	51-28-5	---	Previously evaluated. No further monitoring required.	---	---
2-Methyl-4,6-Dinitrophenol	534-52-1	---	Previously evaluated. No further monitoring required.	---	---
Nonylphenol	104-40-51	---	**NEW REQUIREMENT. Needs to be sampled.**	---	---
Pentachlorophenol [C]	87-86-5	50.0	Previously evaluated. No further monitoring required.	---	---
Phenol	108-95-2	10.0	Previously evaluated. No further monitoring required.	---	---
2,4,6-Trichlorophenol [C]	88-06-2	10.0	Previously evaluated. No further monitoring required.	---	---
MISCELLANEOUS					
Ammonia-N (mg/L) (Annual) (Jun-Dec)	766-41-7	0.2 mg/L	Default = 9 mg/L	a	C.2
Ammonia-N (mg/L) (Wet Season) (Jan-May)	766-41-7	0.2 mg/L	Default = 9 mg/L	a	C.1

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
Chloride (mg/L)	16887-00-6	---	Previously evaluated. No further monitoring required.	---	---
TRC (mg/L)	7782-50-5	0.1 mg/L	Default = 20 mg/L	a	C.2
Cyanide, Free	57-12-5	10.0	Previously evaluated. No further monitoring required.	---	---
2,4-Dichlorophenoxy acetic acid (synonym = 2,4-D)	94-75-7	---	Applicable to PWS waters only	---	---
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin)(ppq)	1746-01-6	0.01	Applicable to Paper Mills & Oil Refineries only	---	---
Foaming Agents (as MBAS)	N/A	---	Applicable to PWS waters only	---	---
Sulfide, dissolved	18496-25-8	100	**NEW REQUIREMENT. Needs to be sampled.**	---	---
Nitrate as N (mg/L)	14797-55-8	---	Applicable to PWS waters only	---	---
Sulfate (mg/L)	N/A	---	Applicable to PWS waters only	---	---
Total Dissolved Solids (mg/L)	N/A	---	Applicable to PWS waters only	---	---
Tributyltin	60-10-5	---	Previously evaluated. No further monitoring required.	---	---
2-(2,4,5-Trichlorophenoxy) propionic acid (synonym = Silvex)	93-72-1	---	Applicable to PWS waters only	---	---
Hardness (mg/L as $CaCO_3$)	471-34-1	---	NEEDS TO BE SAMPLED IF TESTING IS REQUIRED FOR **Cd, CrIII, Cu, Lead, Ni, Ag or Zn.**	---	---

The **superscript "C"** following the parameter name indicates that the substance is a known or suspected carcinogen; human health criteria at risk level 10^{-5}.

CASRN = Chemical Abstract Service Registry Number for each parameter is referenced in the current Water Quality Standards. A unique numeric identifier designating only one substance. The Chemical Abstract Service is a division of the American Chemical Society.

"Source of Data" codes:
a = default effluent concentration
b = data from permittee monitoring
c = DEQ sample

"Data Evaluation" codes:
See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

STAT.EXE RESULTS

Ammonia-N (Annual) Chronic averaging period = 30 WLAa = 25 WLAc = 4.6 Q.L. = 0.2 # samples/mo. = 12 # samples/wk. = 3 Summary of Statistics: # observations = 1 Expected Value = 9 Variance = 29.16 C.V. = 0.6 97th percentile daily values = 21.9007 97th percentile 4 day average = 14.9741 97th percentile 30 day average= 10.8544 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data A limit is needed based on Chronic Toxicity Maximum Daily Limit = 9.28128242971503 Average Weekly Limit = 6.78873556040874 Average Monthly Limit = 5.0567206733563 The data are: 9	Ammonia-N (Jan-May) Chronic averaging period = 30 WLAa = 32 WLAc = 11 Q.L. = 0.2 # samples/mo. = 12 # samples/wk. = 3 Summary of Statistics: # observations = 1 Expected Value = 9 Variance = 29.16 C.V. = 0.6 97th percentile daily values = 21.9007 97th percentile 4 day average = 14.9741 97th percentile 30 day average= 10.8544 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data No Limit is required for this material The data are: 9	TRC Chronic averaging period = 4 WLAa = 0.04 WLAc = 0.024 Q.L. = 0.1 # samples/mo. = 90 # samples/wk. = 21 Summary of Statistics: # observations = 1 Expected Value = 20 Variance = 144 C.V. = 0.6 97th percentile daily values = 48.6683 97th percentile 4 day average = 33.2758 97th percentile 30 day average= 24.1210 # < Q.L. = 0 Model used = BPJ Assumptions, type 2 data A limit is needed based on Chronic Toxicity Maximum Daily Limit = 3.51017948172776E-02 Average Weekly Limit = 1.82778826119156E-02 Average Monthly Limit= 1.61409521426644E-02 The data are: 20

APPENDIX C

BASES FOR PERMIT SPECIAL CONDITIONS

Tabulated below are the sections of the permit, with any changes and the reasons for the changes identified. Also provided is the basis for each of the permit special conditions.

Cover Page — Content and format as prescribed by the VPDES Permit Manual.

Part I.A. — **Effluent Limitations and Monitoring Requirements:** Bases for effluent limits and monitoring requirements provided in previous pages of fact sheet.
Updates Part I.A.1 of the previous permit with the following:

- Slight changes were made to the format and introductory language.
- Seasonal BOD_5 requirements were changed to year-round as they were identical.
- The monitoring frequency for BOD_5 during Jan-May was reduced from 3 Days/Week to 1/Week based on reduced monitoring guidance.
- More stringent Ammonia-N limits (Jun-Dec) were included.
- Effluent TRC requirements were moved to Part I.B.
- Annual monitoring for TP, TKN, Nitrite + Nitrate, and TN was added per Guidance Memo No. 14-2011.
- Footnotes were updated as necessary.

Part I.B. — **Total Residual Chlorine (TRC) Effluent Limitations and Monitoring Requirements:** *Updates Part I.B of the previous permit. Effluent TRC requirements were included in this part. TRC monitoring is more frequent and limits more stringent than in the previous permit.* Specifies both disinfection and effluent limits and monitoring requirements should the permittee elect to switch from alternate disinfection to chlorine disinfection. Required by Sewage Collection and Treatment (SCAT) Regulations and 9VAC25-260-170, Bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.

Part I.C. — **Effluent Limitations and Monitoring Requirements – Additional Instructions***: Updates Part I.C of the previous permit with minor wording changes.* Authorized by VPDES Permit Regulation, 9VAC25-31-190 J.4 and 220.I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

Part I.D. — **Pretreatment Program Requirements:** *Updates Part I.D of the previous permit with minor wording changes.* VPDES Permit Regulation, 9VAC25-31-730 through 900, and 40 CFR Part 403 require certain existing and new sources of pollution to meet specified regulations.

Part I.E.1 — **95% Capacity Reopener:** *Updates Part I.E.1 of the previous permit with minor wording changes*. Required by VPDES Permit Regulation, 9VAC25-31-200 B 4 for Publicly Owned Treatment Works (POTW) and Privately Owned Treatment Works (PVOTW) permits.

Part I.E.2 — **Indirect Dischargers:** *Identical to Part I.E.2 of the previous permit.* Required by VPDES Permit Regulation, 9VAC25-31-200.B.1 and 2 for Publicly Owned Treatment Works (POTW) and Privately Owned Treatment Works (PVOTW) that receive waste from someone other than the owner of the treatment works.

Part I.E.3 **Materials Handling/Storage:** *Updates Part I.E.3 of the previous permit with minor wording changes*. 9VAC25-31-50.A prohibits the discharge of any waste into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

Part I.E.4 **O&M Manual Requirement:** *Updates Part I.E.4 of the previous permit with changes to what is required to be included in the O&M Manual.* Required by Code of Virginia Section 62.1-44.19, Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790, and VPDES Permit Regulation 9VAC25-31-190.E for all STPs.

Part I.E.5 **CTC/CTO Requirement:** *Identical to Part I.E.5 of the previous permit.* Required by Code of Virginia 62.1-44.19, Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790, and VPDES Permit Regulation 9VAC25-31-190.E for all STPs.

Part I.E.6 **SMP Requirement:** *Identical to Part I.E.6 of the previous permit.* VPDES Permit Regulation 9VAC25-31-100.P, 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements are derived from the Virginia Pollution Abatement Permit Regulation (9VAC25-32-10 *et seq.*)

Part I.E.7 **Licensed Operator Requirement:** *Identical to Part I.E.7 of the previous permit.* The VPDES Permit Regulation 9VAC25-31-200.C, the Code of Virginia 54.1-2300 et seq., and Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18VAC160-20-10 et seq.), require licensure of operators. A class III license is indicated for this facility.

Part I.E.8 **Reliability Class:** *Identical to Part I.E.8 of the previous permit.* Required by Sewage Collection and Treatment (SCAT) Regulations 9VAC25-790 for all municipal facilities.

Part I.E.9 **Water Quality Criteria Monitoring:** *New Requirement.* State Water Control Law Section 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, Subpart 131.11. To ensure that water quality standards are maintained, the permittee is required to analyze the facility's effluent for the substances noted in Attachment A of this VPDES permit.

Part I.E.10 **Treatment Works Closure Plan**. *Updates Part I.E.9 of the previous permit with minor wording changes*. This condition establishes the requirement to submit a closure plan for the treatment works if the treatment facility is being replaced or is expected to close. This is necessary to ensure industrial sites and treatment works are properly closed so that the risk of untreated waste water discharge, spills, leaks and exposure to raw materials is eliminated and water quality maintained. Section 62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law.

Part I.E.11 **Reopeners:**

a. *Identical to Part I.E.10.a of the previous permit:* Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

b. *Identical to Part I.E.10.b of the previous permit:* 9VAC25-40-70.A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.

c. *Updates Part I.E.10.c of the previous permit with minor wording changes:* 9VAC25-31-390.A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

d. *Identical to Part I.E.10.d of the previous permit:* Sludge Reopener. Required by the VPDES Permit Regulation, 9VAC25-31-220.C, for all permits issued to treatment works treating domestic sewage.

Part I.E.12 **Effluent Monitoring Frequencies:** *New Requirement.* Permittees are granted a reduction in monitoring frequency based on a history of permit compliance. To remain eligible for the reduction, the permittee should not have violations related to the effluent limits for which reduced frequencies were granted. If the permittee fails to maintain the previous level of performance, the baseline monitoring frequencies should be reinstated for those parameters that were previously granted a monitoring frequency reduction.

Part II **Conditions Applicable to All VPDES permits:** *Updates Part II of previous permit.* VPDES Permit Regulation 9VAC25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

Deletions **None**